

AMENDMENTS TO THE SPECIFICATION:

On page 1 immediately following the title, please insert headings as follows:

BACKGROUND OF THE INVENTION

Field of the Invention

The paragraph beginning on page 1, line 3 has been changed as follows:

The ~~present~~ invention relates to a printing apparatus and, in particular, to a printing apparatus which is arranged to print an image on a discrete label or a continuous supply of tape. The ~~present~~ invention also relates to a supply of labels and to a supply of image receiving tape.

On page 1, line 8 please insert a heading as follows:

Related Technology

The paragraphs beginning on page 1, line 13 have been changed as follows:

It has been proposed to place markings on the back of the continuous backing medium or the backing layer of a continuous tape. For example, in ~~EP575772~~ EP 575 772 a thermal printer is disclosed on which an image is printed on discrete labels. Markings to identify the characteristics of the label can be provided either on the label itself or on the backing sheet. The markings are read by the thermal printer and are used to determine whether an image should be printed directly on the label by the thermal printer or whether an ink ribbon is required to print an image thereon.

~~US-A-4531851~~ U.S. 4,531,851 describes a printer which prints an image on a plurality of discrete labels carrying the backing web. Each label on the backing web has a marking which is used to control the timing of a printing. In other words, the signal resulting

from the detection of the marks on each label is used to control when the printer is activated so that the image falls within the label boundaries.

~~EP-A-934168~~ EP 934 168 (Esselte N.V.) discloses a tape printing apparatus where markings are provided on the back of the tape. These markings are used for example to indicate the characteristics of the tape such as colour, tape width, whether or not an ink ribbon is required etc. In this document, the speed of the tape is determined from the markings and this in turn is used to control the speed of a motor to hold the speed constant. The information is also used to control the strobing of the print head in response to the speed.

~~JP-A-2000318249~~ JP 2000-318249 discloses a printer for an automatic cash delivery machine having a compensation unit which corrects a print start position by comparing actual and set mark detection times.

On page 2, line 17 please insert a heading as follows:

SUMMARY OF THE INVENTION

The paragraphs beginning on page 2, line 18 have been changed as follows:

According to a first aspect, ~~of the present invention, there is provided~~ provides a printer for printing an image on an image receiving material provided on a backing material, said backing material having regularly spaced markings provided on the back thereof, said printer comprising means for detecting said markings and means for determining at least one of a spacing between two markings and a width of a marking, comparing the determined marking width and/or spacing with a respective reference value and for causing printing to be stopped if at least one of the determined spacing and/or width differs from the respective reference value by more than a predetermined amount.

According to a second aspect, ~~of the present invention, there is provided~~ provides an image receiving material provided on a backing material with regularly spaced markings

provided on the back of the backing material for use in a printer comprising means for detecting said markings, means for determining at least one of a spacing between two markings and a width of a marking, comparing the determined marking width and/or spacing with a respective reference value and for causing printing to be stopped if at least one of the determined spacing and/or width differs from the respective reference value by more than a predetermined amount.

According to a third aspect, ~~of the present invention, there is provided~~ provides a printer system for printing an image on an image receiving material provided on a backing material, said backing material having regularly spaced markings provided on the back thereof, said printer system comprising means for detecting said markings and means for determining at least one of a spacing between two markings and a width of a marking, comparing the determined marking width and/or spacing with a respective reference value and for causing printing to be stopped if at least one of the determined spacing and/or width differs from the respective reference value by more than a predetermined amount.

According to ~~an~~ one embodiment, ~~of the present invention, there is provided~~ provides a printer for printing an image on a image receiving material provided on a backing material, said backing material having regularly spaced markings provided on the back thereof, said printer comprising means for detecting said markings and means for sending information relating to said detected marking to a computer for processing.

On page 4, line 4 please insert a heading as follows:

BRIEF DESCRIPTION OF THE DRAWINGS

The paragraphs beginning on page 4, line 5 have been changed as follows:

For a better understanding of the ~~present~~ invention and as to how the same may be carried into effect, reference will now be made by way of example only to the accompanying drawings in which:

Figure 1 shows two die cut labels on a backing material embodying the ~~present~~ invention;

Figure 2 shows a schematic view of a printer embodying the ~~present~~ invention;

On page 4, line 22 please insert a heading as follows:

DETAILED DESCRIPTION

The paragraph beginning on page 4, line 23 has been changed as follows:

Reference will first be made to figure 1 which shows two labels 4 on a backing material 2 defining a label supply 10. The labels 4 are discrete labels i.e. die cut labels. The labels 4 are adhered to the backing material 2. The backing material 2 has a release coating on the side to which the labels are adhered in order to allow the labels to be easily removed from the backing material once a label has been printed. Markings 6 are provided on the side of the backing material 2 opposite to that on which the labels 4 are provided. For schematic purposes, ~~figure~~ Figure 1 shows the labels and markings apparently on the same side as the backing tape. This might occur in embodiments where the markings are invisible to the naked eye. However, in preferred embodiments of the ~~present~~ invention, the markings are on the other side of the backing material 2 to the labels.

The paragraphs beginning on page 5, line 26 have been changed as follows:

~~It should be appreciated that the~~ The size of the markings and/or the distance ~~there~~ between therebetween may be altered to reflect different label sizes and/or materials.

Reference is now made to ~~figure~~ Figure 2 which shows a schematic view of a printer embodying the ~~present~~ invention.

The label supply 10 is provided on a supply reel 12. In alternative embodiments of the ~~present~~ invention, the label supply may be provided in a cassette. In other embodiments of the invention, the label supply is provided as a fan-fold stack.

The paragraphs beginning on page 7, line 4 have been changed as follows:

The motor 16 may be controlled in embodiments of the ~~present~~ invention by the CPU 30 via ~~an in-put~~ input line 32.

Embodiments of the ~~present~~ invention are provided with a sensor arrangement 25. The sensor arrangement 25 comprises a light source 24 which may be a light emitting diode and a light detector 22 which may be in the form of a ~~photo-transistor~~ phototransistor. The phototransistor 22 is arranged to detect light emitted by the light source 24 which is reflected from the rear surface of the image receiving medium i.e. the surface on which the markings are provided. In embodiments of the ~~present~~ invention the markings are darker than the background of the image receiving tape. Thus, more light is reflected from the regions between the markings to the photo transistor than when the light from the light emitting diode 24 impinges a marking.

In some embodiments of the ~~present~~ invention a grating ~~maybe~~ may be provided between the light emitting diode and photo transistor on the one hand and the backing material on the other hand. The grating is there to improve the quality of the wave form provided by the photo transistor ~~26~~ 22. The width of the slit of the grating is selected to have a width generally corresponding to the width of a single line. The provision of the grating can improve the contrast between the light regions and the dark regions. This in turn may provide sharper peaks and troughs in the wave form provided by the photo transistor.

The output of the photo transistor 22 is input via a line 26 to the CPU. The CPU 30 may control the light emitting diode 24 via line 28.

The apparatus also comprises a display 40 which is controlled by the output of the CPU 30 via a line 42. In particular, the output of the CPU 30 is input to a display driver 38 which controls the information displayed on the display 40.

Reference will now be made to ~~figure~~ Figure 3 which shows a flow chart illustrating the steps of the invention in conjunction with ~~figure~~ Figure 4 which shows the output of the photo transistor 22. In particular, ~~figure~~ Figure 4 shows the wave form produced with intensity on the y axis and time on the x axis. As can be seen, there are regular troughs 50 with a low intensity. These correspond to the detection of the dark areas. These are separated by peaks 52 which are representative of the light areas. In practice, the wave form may be more sinusoidal. This may be processed or analysed to give the same results obtainable from the waveform of Figure 3 using for example threshold values.

Reference is now made to ~~figure~~ Figure 3 which shows a flow chart of a method embodying the ~~present~~ invention.

The paragraph beginning on page 10, line 14 has been changed as follows:

In the preferred embodiment of the ~~present~~ invention, dark markings against a light back ground are used. In alternative embodiments light markings against a dark background can be used. Highly reflective markings can be used. Markings which are not visible may be used such as for example magnetic markings.